Assessing students' experiences of teaching-learning environments and approaches to learning.

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Assessing students' experiences of teaching-learning environments and approaches to learning: validation of a questionnaire used in different countries and varying contexts

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Abstract

The study examines the use of the modified *Experiences of Teaching and Learning Questionnaire* (ETLQ) in the Finnish context by focusing on its factor structures and comparing them with those in British data. A total of 2509 Finnish and 2710 British students completed the questionnaire. The comparison of the factor structures were conducted using Exploratory Structural Equation Modeling (ESEM) and a transformation analysis. The results showed that although the differences between the factor structures prevented a combined analysis, the structures were highly similar in the two contexts. The study suggests that ETLQ appears to be a sufficiently robust and reliable instrument for use across countries and, in addition, at either the degree subject or the single course module level.

Introduction

Student learning and its relation to students' perceptions of the teaching-learning environment have been widely studied in different contexts over the last 25 years (e.g. Eley 1992; Entwistle and Ramsden 1983; Kreber 2003; Lawless and Richardson 2002; Trigwell and Prosser 1991a, 1991b; Richardson 2005a, 2010). These studies have mainly concentrated on the relation between students' learning and their experiences of the teaching-learning environment across subject areas. However, as the universities are facing new challenges to provide information about their quality to policymakers, society and the international higher education community, there is a need for measurement tools that are valid and internationally comparable. In order to rise to this challenge, the University of Helsinki has implemented a research-based tool for exploring the effectiveness and the quality of its teaching-learning environments. The *Experiences of Teaching and Learning Questionnaire* (ETLQ, see Entwistle et al. 2003; Entwistle 2009) was chosen because it combines the theories behind good teaching and approaches to learning. The ETLQ focuses on the ways students have actually studied in a single course module and on their perceptions of the teaching-learning environments, but for the purposes of monitoring the quality of teaching across faculties, the focus needs to be broader and encompass the whole set of modules taken in the students' main degree subject. As a result the questionnaire had to be modified by altering the instructions and the wording of the questions accordingly.

Theoretical rationale and the development of the revised ETLQ

In the 1970s, Marton and Säljö (1976, 1984) introduced terms describing two qualitatively different approaches to learning: surface and deep. A student applying a surface approach to learning concentrates on memorising and reproducing information, whereas a student who approaches learning at a deeper level aims at understanding and concentrates on analysing

and relating ideas (Entwistle and Ramsden 1983). Previous research suggests that a deep approach to learning is more likely to be related to higher quality learning outcomes than a surface approach (Biggs 1979; Entwistle and Ramsden 1983; Lindblom-Ylänne 1999; Trigwell and Prosser 1991b). As assessment and awareness of assessment criteria guide student learning, an additional approach was introduced, namely, the strategic (Entwistle and Ramsden 1983) or achieving approach (Biggs 1987). Originally this approach referred to students' ambition and organisation, but recently the strategic approach has lost the achievement element, and instead, items measuring it reflect organised studying and effort management rather than students' intention to compete against other students in their courses (Entwistle and McCune 2004; Entwistle and Peterson 2004).

Students' perceptions of the learning context have a crucial influence on their approaches to learning, which are thus seen to be context related (Entwistle and Ramsden 1983; Ramsden 1997). Students' positive perceptions of their learning environments have been found to be positively related to a deep approach to learning, but negatively related to a surface approach to learning (Kreber 2003; Lawless and Richardson 2002; Richardson 2005; Richardson and Price 2003; Sadlo and Richardson 2003). For example, whereas inappropriate assessment and a heavy workload push students toward surface approaches to learning, perceptions of good teaching influence students to move towards deep approaches to learning (Lizzio et al. 2002). Entwistle and Walker (2002) emphasise the role of teaching in supporting high quality learning, arguing that good teaching depends on an extended awareness of the relationship between learning and teaching. In addition, Trigwell and others (1999) found a positive relation between teachers who keep their focus on the intellectual development of their students in their teaching activities, and their students' descriptions of a deep approach to their learning. Furthermore, research at the school level found that a curriculum designed to encourage understanding depended on a continuous assessment of

students' progress, the identification of generative topics, a clear understanding of goals described in terms of what students should learn and, finally, performances of understanding that both encouraged the processes contributing to understanding and also rewarded its achievement (Wiske 1998). These elements should be based on constructive alignment, which means that a teacher supports students' deep approach to learning by aligning teaching and assessment methods to the learning activities stated in the objectives (Biggs 2003).

The ETLQ was constructed in relation to these theories of good teaching and learning in higher education and based on a review of previous attempts at measuring experiences of teaching (Entwistle et al. 2003). It was developed as a part of the research project 'Enhancing teaching-learning environments in undergraduate courses' (the ETL project, see http://www.etl.tla.ed.ac.uk), which investigated ways in which findings from research could be used to create a learner-centred learning environment for students (Entwistle et al. 2003; TLRP 2007).

The focus in the Finnish modified version was at a more general level, exploring each student's experience in his or her major subject. The modified ETLQ was also shorter because only two sections were relevant in the Finnish context. These sections concerned students' experiences of their teaching-learning environments and their approaches to learning. The two sections of the ETLQ were translated into Finnish and modified by the authors, keeping in mind the culturally specific context of the present study. On the basis of cultural differences, some changes were made. For example, instead of talking about staff, the word 'teachers' was used in the items measuring students' perceptions of the teaching-learning environment. In Finland University's 'staff' refers to the whole staff including administration. To avoid any changes in the composition of the main scales of the original ETLQ, a back-translation procedure took place. The items were translated into Finnish by the authors and back-translated into English by a researcher working in the field of higher

education who was not involved in the study. After that, the English version was checked against the original by another researcher. The original English and back-translated versions of the inventory were quite similar. As mentioned earlier, the biggest difference was that the original ETLQ focuses on the experiences in a single course unit or module, whereas the version used in the present study focused on studying in the students' major subject. Before answering the items concerning approaches to learning, students were asked to consider a typical course in their major subject (teaching and assessment methods, nature of the course, number of participating students) and describe it. The first Finnish version of the questionnaire was piloted on a small sample (N=53) of first-year theology students in spring 2005. After the testing, minor changes were made to the wording of some items, which had low loadings or communalities and notable skewness, with the aim of clarifying the meaning of these items.

The ETLQ instrument contains five sections, of which two were appropriate for use in this study. The first is a reduced version of another instrument used in the ETL project – the *Approaches to Learning and Studying Inventory* – which contains items relating to approaches to learning and studying. This section was a modified form of an inventory originally published in 1983, which has provided a stable factor structure through several versions and across several countries (Richardson 1994; Entwistle and McCune 2004). The other section covers the students' experiences of the teaching-learning environment provided. There are still rather few studies using the ETLQ, but within the original study, the scale consistency and the factor structure for each section were robust across the four subject areas used (McCune 2003; Entwistle 2009), and comparable factors were also obtained with students in mainland China for experiences of teaching (Xu 2004).

The present study examines the use of the modified ETLQ in the Finnish context by focusing on its factor structures and comparing them with British data. To be precise, the aim

is to explore the differences and similarities in the factor structure in the two different contexts with contrasting focuses. In addition, the present study examines the relationship between students' experiences of the teaching-learning environment and their approaches to learning in the Finnish and British contexts, with the focus on the degree subject or a specific module.

Method

Participants

The study in Finland was carried out in the spring of 2006 in 10 of the 11 faculties of the University of Helsinki which is a research intensive university. A total of 2,509 first- and third year students were asked to complete an electronic questionnaire online. The response rates varied markedly between faculties (from 86 to 28%), with response rates for the first-year students of 34% (n=1,367) and for the third-year students of 31% (n=1,103). The first-year students were slightly more numerous. Thirty-nine students did not report their study year. Twenty-two percent of the sample were men (n=546), and 78% were women (n=1,960). Three students did not report their gender. Since the percentage of female students in 2006 actively studying at the University of Helsinki was 66%, the percentage of women in the present study was somewhat higher than the total proportion of female students at the University.

The British data came from a total sample of 2,710 students who were either early or late in their degree studies. They represented 26 undergraduate course units across eleven universities, a majority of which were research-intensive, and one college. The students were taking degrees in electronic engineering (19%), biological sciences (30%), economics (24%) and history (27%). These subject areas were drawn from contrasting faculties which ran popular courses. Of the students, 1,436 students were from the science and applied science

faculties, and 1,274 from the arts and social sciences, and belonged to the 2002 and 2003 cohorts. Furthermore, 50% of the British sample were men (n=1,352), and 50% were women (n=1,358).

Instrument

The analyses were carried out on the two sections of the ETLQ common to each data set. The first section contained 40 items that measure students' experiences of the teaching-learning environment and the second contained 18 items that indicated students' approaches to learning and studying, and that relate either to the courses in the main subject (Finland) or the specific course unit (Britain). In the modified ETLQ, which was used in Finland, the references to a specific course module or unit were removed and replaced with a reference to courses in the plural. Furthermore, the original ETLQ in Britain was a printed questionnaire, whereas the modified version used in this study was an online questionnaire. In each questionnaire, students were asked to respond to the items using a 5-point Likert scale (1=agree to 5=disagree).

Statistical analyses

The first phase of the analyses was the initial screening of the data. The distributions and ranges were examined. The number of missing values in the data was also considered. The MVA module of the SPSS (SPSS Missing Value Analysis 2007) and its option expectation maximisation (EM) algorithm (Little and Rubin 1987) were used to impute the missing values in the data. These analyses also showed that the missing data per item was low (0.9 %). The first phase was finished with exploratory factor analyses (EFA, principal axis factor solution, promax rotation).

The second phases started with a comparison of the factor structures in both data sets. The robustness of the measurement instrument was first analysed with confirmatory factor analysis (CFA). Since the CFA led to difficulties in obtaining convergence in the modelling process, Exploratory Structural Equation Modeling (ESEM), which allows less restrictive measurement models to be used (see Asparouhov & Muthén 2008; Marsh et al. 2009), was chosen.

Furthermore, the ESEM was complemented with a transformation analysis (Ahmavaara and Markkanen 1958; Rummel 1970; Cattell 1978) to compare the equality of the factor structures in the Finnish and the British data. Cronbach's coefficient alpha (Cronbach 1951) has been criticised for not giving an accurate value for reliability and it may for example indicate values that are too low (Schmitt, 1993). Thus, the internal consistency in the present study was measured with a more accurate method, General Reliability (Raykov 1997; Tarkkonen and Vehkalahti 2005; Vehkalahti et al. 2007). The ESEM provided the correlations which were used to elucidate the relations between the factors formed from experiences of the teaching-learning environment and approaches to learning. The analyses were conducted with SPSS/PASW version 18, Mplus version 5.21 and SURVO MM version 3.06 (Mustonen 1992).

Results

The initial analysis showed that some items were problematic in the light of their distributions and, for example, Item 3 (see Table 2) which measures approaches to learning, exceeded the value -1 in negative skewness, in other words, there were relatively few low values in these items in both data sets. In addition, the differences between countries were quite obvious, but gender differences were in general small.

A solution with six factors of items measuring experiences (40 items) and a solution with four factors of items measuring approaches to learning (18 items) were chosen as these factor solutions presented the clearest pattern matrix and the solutions were based on theoretical viewpoints and earlier empirical findings of the earlier studies concerning the use of the ETLQ (McCune 2003; Entwistle 2009; Xu 2004). Furthermore, the four-factor solution of items measuring approaches to learning emerged when the Eigenvalue was less than one in the Finnish data. In the British data, the number of the factors measuring approaches to learning could also have been three, but in order to compare the structures, four factor solutions were selected in both data sets. The six-factor solution of items measuring students' experiences of their teaching-learning environment emerged clearly from both data sets.

The comparison of the factor structures with the EFA suggested that the factor structures in items measuring students' experiences of the teaching-learning environment and students' approaches to learning were similar in both data sets, Finnish and British. The analysis of the 40 items measuring students' experiences of the teaching-learning environment showed that the Kaiser-Meyer-Olkin measure was in both contexts very similar (FI .954 and UK .952). In addition, the analysis of the 18 items measuring students' approaches to learning also suggests similar values in the two contexts (FI .888 and UK .885).

However, a more detailed analysis of the differences between the factor structures with the ESEM suggested a lack of fit in the factor structures for items measuring experiences of the teaching-learning environment (Chi-square 6604.71, df=1110, $p<.0001$, CFI=.928, TLI=.899, RMSEA=.044) and for items measuring students' approaches to learning (Chi-square 868.17, df=174, $p<.0001$, CFI=.969, TLI=.946, RMSEA=.039). The results, and especially the Chi-square, suggested that the differences between the factor structures in the two contexts were significant. At least, the structures were too different to be

able to conduct a common factor analysis and modelling process. However, the Chi-square in a large data set, such as in the present study, may be too strict criterion, and it easily suggests statistically significant differences. In addition, other indices, RMSEA, CFI and TLI scores (CFI and TLI > .95, RMSEA < .06), indicated a very good fit of the factor structures (Hu & Bentler, 1999).

On the basis of these results, the ESEM modelling solutions were carried out separately, but because of high degree of similarity it was justified to compare the factor solutions in the two data sets. Table 1 shows the final factors with the factor loadings of each item measuring students' experiences of teaching, while Table 2 presents the factor solution of the items measuring students' approaches to learning in both contexts. Both tables include the reliabilities of the factors in both data sets, which are given below the factor loadings. The tables include items from the original ETLQ with the main difference between the Finnish and the British versions being that the British version focused on particular course unit whereas in Finland the focus was on several courses and students' overall experience of them.

Table 1. Pattern matrix of the loadings for the six factor solution for the 40-items describing perceptions of the teaching-learning environment in two contexts. (The items from the original, British ETLQ)

		Factors measuring experiences of the teaching-learning environments					
Statement	Context	FE1	FE2	FE3	FE4	FE5	FE6
1. It was clear to me what I was supposed to learn in this course unit.	Finnish		0.542				
	British		0.646				
2. The topics seemed to follow each other in a way that made sense to me.	Finnish		0.450				
	British		0.548				
3. We were given a good deal of choice over how we went about learning.	Finnish						
	British	0.218					
4. The course unit was well organised and ran smoothly.	Finnish		0.480				
	British		0.377	0.344			
5. We were allowed some choice over what aspects of the subject to concentrate on.	Finnish			0.363			
	British	0.248				0.268	
6. What we were taught seemed to match what we were supposed to learn.	Finnish		0.538				
	British		0.610				
7. We were encouraged to look for links between this unit and others.	Finnish	0.356					
	British	0.302					
8. I can imagine myself working in the subject area covered by this unit.	Finnish				0.471		0.215
	British				0.551		
9. The handouts and other materials we were given helped me to understand the unit.	Finnish		0.253				
	British		0.340				
10. On this unit, I was prompted to think about how well I was learning and how I might improve.	Finnish	0.329		0.259			
	British	0.350					
11. I could see the relevance of most of what we were taught in this unit.	Finnish		0.208		0.588		
	British		0.341		0.244	-0.039	
12. We weren't just given information; the staff explained how knowledge is developed in this subject.	Finnish	0.630					
	British	0.297		0.381			
13. The teaching encouraged me to rethink my understanding of some aspects of the subject.	Finnish	0.552					
	British	0.452					
14. The different types of teaching (lectures, tutorials, labs etc.)	Finnish		0.298				

supported each other well.	British		0.210	0.280			
15. Plenty of examples and illustrations were given to help us to grasp things better.	Finnish		0.290				
	British		0.268	0.326			
16. This unit has given me a sense of what goes on 'behind the scenes' in this subject area.	Finnish	0.618					
	British	0.462					
17. The teaching in this unit helped me to think about the evidence underpinning different views.	Finnish	0.680					
	British	0.567					
18. How this unit was taught fitted in well with what we were supposed to learn.	Finnish		0.504				
	British		0.477	0.250			
19. This unit encouraged me to relate what I learned to issues in the wider world.	Finnish	0.501					
	British	0.475					
20. The web pages provided by staff helped me to understand the topics better.	Finnish					0.266	
	British						
21. Students supported each other and tried to give help when it was needed.	Finnish						0.772
	British						0.792
22. I found most of what I learned in this course unit really interesting.	Finnish				0.743		
	British				0.766		
23. Staff tried to share their enthusiasm about the subject with us.	Finnish			0.445			
	British			0.588			
24. Talking with other students helped me to develop my understanding.	Finnish						0.643
	British						0.713
25. Staff were patient in explaining things which seemed difficult to grasp.	Finnish		0.265	0.444			
	British			0.644			
26. I enjoyed being involved in this course unit.	Finnish			0.279	0.606		
	British				0.793		
27. Students' views were valued in this course unit.	Finnish			0.450			
	British			0.483			
28. Staff helped us to see how you are supposed to think and reach conclusions in this subject.	Finnish	0.686					
	British			0.467			
29. I found I could generally work comfortably with other students in this unit.	Finnish						0.667
	British						0.580

30. This course unit provided plenty of opportunities for me to discuss important ideas.	Finnish	0.224		0.467			
	British	0.210				0.257	0.202
31. It was clear to me what was expected in the assessed work for this course unit.	Finnish		0.669				
	British		0.476			0.424	
32. I was encouraged to think about how best to tackle the set work.	Finnish		0.362	0.203	-0.248	0.201	
	British		0.259			0.497	
33. I could see how the set work fitted in with what we were supposed to learn.	Finnish		0.647				
	British		0.463			0.280	
34. You really had to understand the subject to get good marks in this course unit.	Finnish					0.365	
	British						
35. The feedback given on my work helped me to improve my ways of learning and studying.	Finnish					0.725	
	British					0.726	
36. Doing the set work helped me to think about how evidence is used in this subject.	Finnish	0.471				0.336	
	British	0.246				0.462	
37. Staff gave me the support I needed to help me complete the set work for this course unit.	Finnish		0.262	0.354		0.251	
	British			0.310		0.448	
38. To do well in this course unit, you had to think critically about the topics.	Finnish	0.291				0.311	
	British	0.322				0.279	
39. The set work helped me to make connections to my existing knowledge or experience.	Finnish	0.285				0.336	
	British	0.211				0.313	
40. The feedback given on my set work helped to clarify things I hadn't fully understood.	Finnish					0.762	
	British					0.723	
General Reliabilities (Method of Tarkkonen & Vehkalahti, 2005 by Survo)	Finnish	0.851	0.816	0.734	0.811	0.785	0.792
	British	0.764	0.817	0.774	0.818	0.800	0.804

Note. Loadings below .20 are omitted. FE1, Teaching for understanding; FE2, Alignment; FE3, Staff enthusiasm and support; FE4, Interest and relevance; FE5, Constructive feedback; FE6, Support from other students.

Table 2. Pattern matrix of the loadings for the four-factor solution for the 18-items describing approaches to learning in two contexts. (The items from the original, British ETLQ)

		Factors measuring approaches to learning			
Statement	Context	FA1	FA2	FA3	FA4
1. I've often had trouble making sense of the things I have to remember.	Finnish				0.645
	British				0.607
2. I've been over the work I've done to check my reasoning and see that it makes sense.	Finnish			0.311	
	British			0.510	
3. I have usually set out to understand for myself the meaning of what we had to learn.	Finnish			0.736	
	British			0.601	
4. I have generally put a lot of effort into my studying.	Finnish		0.551	0.270	
	British		0.576	0.304	
5. Much of what I've learned seems no more than lots of unrelated bits and pieces in my mind.	Finnish				0.544
	British				0.758
6. In making sense of new ideas, I have often related them to practical or real life contexts.	Finnish	0.246			
	British	0.422			
7. On the whole, I've been quite systematic and organised in my studying.	Finnish		0.730		
	British		0.749		
8. Ideas I've come across in my academic reading often set me off on long chains of thought.	Finnish	0.674			
	British	0.678			
9. I've looked at evidence carefully to reach my own conclusion about what I'm studying.	Finnish	0.808			
	British	0.641			
10. When I've been communicating ideas, I've thought over how well I've got my points across.	Finnish	0.619			
	British	0.415			
11. I've organised my study time carefully to make the best use of it.	Finnish		0.691		
	British		0.778		
12. It has been important for me to follow the argument, or to see the reasons behind things.	Finnish	0.610			
	British	0.426			
13. I've tended to take what we've been taught at face value without questioning it much.	Finnish	-0.446			0.241
	British	-0.389			0.300
14. I've tried to find better ways of tracking down relevant information in this subject.	Finnish		0.307	0.228	
	British	0.455			
15. Concentration has not usually been a problem for me, unless I've been really tired.	Finnish		0.366		-0.254
	British		0.313		-0.249
16. In reading for this course unit, I've tried to find out for myself exactly what the author means.	Finnish			0.549	
	British	0.458			
17. I've just been going through the motions of studying without seeing where I'm going.	Finnish		-0.358		0.234
	British				0.508
18. If I've not understood things well enough when studying, I've tried a different approach.	Finnish	0.348			
	British	0.268			
General Reliabilities (Method of Tarkkonen & Vehkalahti, 2005 by Survo)	Finnish	0.817	0.763	0.700	0.585
	British	0.755	0.780	0.597	0.697

Note. Loadings below .20 omitted. FA1, Deep approach; FA2, Organised studying; FA3, Intention to understand; FA4, Surface approach.

The final six factors of students' experiences were labelled as (FE1) Teaching for understanding, (FE2) Alignment (labelled Coherence and congruence in the British study), (FE3) Staff enthusiasm and support, (FE4) Interest and relevance, (FE5) Constructive feedback and (FE6) Support from other students. The factors measuring approaches to learning were named as follows: (FA1) Deep approach, (FA2) Organised studying, (FA3) Intention to understand, (FA4) Surface approach. The calculation of reliability showed that the internal consistency of the Surface approach (Finnish .585 and British .697) was quite low. The reliabilities of the other factors in both data sets are presented at the bottom of Table 2.

To complete the ESEM analyses, transformation analyses took place. Transformation analyses showed that the correspondences of the six factors measuring students' experiences of the teaching-learning environment (FE) and the four factors measuring approaches to learning (FA) were high even though their variation prevented a combined analysis of the two data sets. The coefficients (varying from 0= no correspondence to -1/1= total correspondence) of the factors measuring experiences were FE1 .869, FE2 .924, FE3 .706, FE4 .847, FE5 .848 and FE6 .954. In the four factors measuring approaches to learning, the figures were FA1 .880, FA2 .947, FA3 .817 and FA4 .949. The transformation analysis also showed that there were items with a notable difference in the two contexts. These were items 5, 11, 28, 30, 31, 32 and 34, which measure experiences of the teaching-learning environment. Most of these items loaded on many factors. Furthermore, item 28 loaded clearly on different factors in the two contexts, and item 34 had low loadings in the British context. Items 14, 16 and 17, which measure approaches to learning had also notable differences.

The relationships between experiences of the teaching-learning environment and approaches to learning and studying

Table 3 shows the ESEM estimated correlations between the students' scores on the six factors of experiences of the teaching-learning environment and the students' scores on the four factors of the Approaches to Learning and Studying Inventory in two different contexts. The results showed statistically significant and positive correlations among the factors Deep approach (FA1), Organised studying (FA2) and Intention to understand (FA3), and the six factors of perceptions of the teaching-learning environment in both contexts. Surface approach (FA4) and the six factors of perceptions of the teaching-learning environment had significant uniformly negative correlations.

A closer look at the differences between the correlations in the British and Finnish data showed that the correlations are systematically stronger in the British data between the factors measuring students' experiences of the teaching-learning environment and Deep approach (FA1) ($r>.10$, $p<.001$). Furthermore, the factors Intention to understand (FA3) and Deep approach (FA1) have a stronger correlation in the British data than in the Finnish data. The relation between Surface approach (FA4) and factors measuring experiences differed significantly only in one correlation in the two contexts, namely the correlation between Surface approach (FA4) and Teaching for understanding (FE1). This correlation was more strongly negative in the Finnish data. Otherwise the correlations between Surface approach (FA4) and factors measuring experiences of teaching were quite similar in both data sets.

Table 3. Intercorrelations between the perceptions of the teaching-learning environment factors and the approaches to learning factors in the two contexts ($p < .001$)

		Factors measuring experiences of the teaching-learning environments						Factors measuring approaches to learning			
	Context	FE1	FE2	FE3	FE4	FE5	FE6	FA1	FA2	FA3	FA4
FE1.	Finnish	1									
	British	1									
FE2.	Finnish	0.587	1								
	British	0.429	1								
FE3.	Finnish	0.471	0.390	1							
	British	0.481	0.423	1							
FE4.	Finnish	0.474	0.434	0.204	1						
	British	0.510	0.410	0.477	1						
FE5.	Finnish	0.487	0.440	0.395	0.223	1					
	British	0.458	0.288	0.517	0.319	1					
FE6.	Finnish	0.304	0.255	0.223	0.268	0.250	1				
	British	0.235	0.160	0.309	0.277	0.288	1				
FA1.	Finnish	0.430	0.157	0.219	0.318	0.246	0.107	1			
	British	0.658	0.260	0.295	0.442	0.401	0.221	1			
FA2.	Finnish	0.179	0.241	0.116	0.360	0.230	0.221	0.295	1		
	British	0.274	0.192	0.214	0.239	0.298	0.189	0.416	1		
FA3.	Finnish	0.285	0.252	0.050	0.487	0.206	0.275	0.439	0.444	1	
	British	0.348	0.270	0.266	0.272	0.201	0.247	0.561	0.439	1	
FA4.	Finnish	-0.441	-0.506	-0.215	-0.468	-0.138	-0.233	-0.379	-0.255	-0.370	1
	British	-0.275	-0.519	-0.289	-0.485	-0.205	-0.123	-0.405	-0.234	-0.304	1
Factor determinacy index	Finnish	0.933	0.923	0.867	0.909	0.899	0.884	0.914	0.889	0.864	0.830
	British	0.893	0.906	0.905	0.922	0.914	0.885	0.902	0.900	0.818	0.874

Note. FE1, Teaching for understanding; FE2, Alignment; FE3, Staff enthusiasm and support; FE4, Interest and relevance; FE5, Constructive feedback; FE6, Support from other students; FA1, Deep approach; FA2, Organised studying; FA3, Intention to understand; FA4, Surface approach.

Discussion

In this study two sections of the Experiences of Teaching and Learning Questionnaire (ETLQ) were used in two different contexts. These contexts represent two different Western European countries with different cultures and languages, Finnish and British. The institutions in which the questionnaire was carried out were also very different. In Finland the participants were from one university and in Britain the students came from twelve different institutions. In addition, the questionnaire was used for different purposes. In Finland the focus was on student's experience in his or her major subject and set of modules whereas in Britain the focus was on single course module. The purpose of this study was to explore the differences and similarities of the factor structures that emerged from these two very different contexts. The factor structures consisted of six factors measuring students' experiences of the teaching-learning environment and four factors measuring students' approaches to learning.

Cross-cultural validity is indicated by the extent to which the factor structure has the same components and the same relations among components across cultures (Hui and Triandis 1985), but the demonstration of the equivalence of the measurements in the different cultures is a difficult and complex task. In the present study, the focus was, first, in the factor structures in the two contexts, Finnish and British. The analyses revealed that the factor structures varied somewhat between the two data sets. Some differences were, in fact, expected, as it must be kept in mind that both approaches to learning, as well as perceptions of the teaching-learning environment, have been shown to be context-specific (e.g. Entwistle and Ramsden 1983; Lonka and Lindblom-Ylänne 1996).

Because the factor structure varied somewhat across the different data sets, the factor analyses were carried out separately. The reliabilities of the factors that emerged were measured in terms of the internal consistency and 'general reliabilities' ranged from 0.595 to 0.851 in the constituent factors. The acceptable

values for reliability are over .60 (Nunnally and Bernstein 1994), and thus the results suggest the appropriateness of the ETLQ in the two different contexts. In order to develop the questionnaire and investigate its reliability further, longitudinal inventory data, as well as interview data, is currently being collected in the Finnish context. Students who have participated in the present study will be asked to fill in the questionnaire again later in their university studies.

The calculation of reliability showed that the internal consistency of the surface approach was quite low in both contexts. This is in line with the reliabilities that have been reported for these scales in earlier studies (Lonka and Lindblom-Ylänne 1996; Watkins 1998). In earlier studies, two somewhat different factors have been reported within the surface approach, one indicating Fragmented knowledge, Memorising without understanding and Fear of failure, while the other suggested Unthinking acceptance and a Lack of engagement (Entwistle 1998; Entwistle and McCune 2004). Such rather disparate elements would account for the lower reliability of a composite scale.

The results showed that there are certain items that need more detailed analysis. Items 5, 11 and 28, which measure students' experiences of the teaching-learning environment loaded on different or many factors in the Finnish and British data. This may imply the difficulty of creating items that measure different aspects of academic quality and load on clearly different factors. The factors measuring students' experiences of the teaching-learning environment are related to each other and there is a strong latent factor of good teaching, which sums all the scores (Entwistle 2009; Richardson 2005a). In addition items 31, 32 and 34, which measure students' experiences, were problematic in the light of the transformation analyses. These differences may occur, because these items focused on assessment in the course unit in the British data and the overall assessment practices in the Finnish data. In the Finnish data in particular, the variation in the course assignments and assessed work is large, and there are courses with no assignments at all. For these

reasons it may be difficult for a student to answer such questions and especially when the focus is on several courses rather than on a single course unit. Therefore, the focus of the items measuring assessment practices should be on a more general level. It should be clearly stated in the items that assessment practices cover different kind of course assignments, practical work and examinations.

There were also notable differences in how items 14, 16 and 17, which measure students' approaches to learning, loaded on different factors in the two data sets. The differences between the focus of the questionnaire may be one reason for this to happen. In the original British ETLQ two, questions, 14 and 17, were clearly related to a specific course unit or module, whereas in the Finnish data these questions were posed on a more general level. The other questions in the original ETLQ as well as the Finnish version indicate a more consistent or typical way of studying across contexts (Entwistle & McCune 2004). Item 17 also appears to be problematic in the light of the factor structures in the two contexts. It loaded negatively on the factor Organised studying in the Finnish data and positively on the surface approach factor in the British data. The reason for these differences may be that students studying at the University of Helsinki are obligated to make individual and personal study plan. Item 17 may for this reason be associated with organised studying more than a surface approach.

The same relation among different components across cultures is one criterion for cross-cultural validity (Hui and Triandis 1985). The present study investigated the relation between the factors measuring students' approaches to learning and their perceptions of the teaching-learning environment. The results showed that the correlation between Deep approach, Organised studying and Intention to understand, and the six factors of experiences of the teaching-learning environment were uniformly positive and statistically significant, while the correlation between Surface approach and the six factors of experiences of the teaching-learning environment were uniformly negative and statistically significant. The results suggest that

positive perceptions of the teaching-learning environment are positively related to deep approaches to learning and negatively related to a surface approach to learning. This result is in line with earlier studies (Lawless and Richardson 2002; Lizzio et al. 2002; Richardson 2005a) and replicates the results conducted with the original ETLQ in Britain (Entwistle et al. 2003). It should, however, be appreciated that the relation between students' experiences and their approaches to learning appears to flow in both directions, in other words, students' experiences affect approaches to learning, but approaches to learning affect students' experiences as well (Richardson 2006, 2007, 2010).

The results of the present study suggest that factor loadings of the items may vary due to differing cultures and differing focuses in the two data sets, for example, the degree subject or the specific module involved. Unfortunately the lack of background information prevented deeper analysis and, for example, detailed comparisons between disciplines. This would have given more valuable information about the validity of the measurement instrument. Still, despite a few problematic items in the factor structure, the factor structures in the two data sets were highly similar in the differing contexts and under the differing conditions of completion. The results indicate fair dimensional and configural invariance of the two data sets, in other words the same number of factors emerge and the same items are associated with the same underlying factors in both the Finnish and British data sets (Gregorich, 2006). There were similarities even though their variation prevented combined analyses of the data sets. This variation does, however, suggest that the instrument is not as robust as, for example, the Programme for International Student Assessment (PISA), which provides internationally comparable information across different fields of education. Therefore, the use of the ETLQ for comparative purposes should always be critically evaluated. It should also be acknowledged that, although the same dimensions emerge from the data sets, they are interpreted

differently within cultures (Richardson 1994), and thus it is important to take cultural diversity into account in adapting new questionnaires (Richardson 2004).

To sum up, the relation between the students' experiences of the teaching-learning environment and their approaches to learning suggest substantial cross-cultural validity in how well the modified and original ETLQ measure the same traits that they supposed to measure. In the light of the present study, the two sections of ETLQ measuring students' experiences of their teaching-learning environment and their approaches to learning, appear to be sufficiently robust and reliable to allow them to be used for this purpose across countries with equivalent higher education systems, at either the degree subject or the single course module level.

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